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9

Plasticity of steel and the fineness of surface preparation. F. P. Rybalko and M. V. Yakutovich. *Doklady Akad. Nauk S.S.S.R.* 64, 673-4 (1940).—The effect of the fineness of surface prepn. on the mech. properties of a ductile material was investigated. The properties of a brittle material are improved by polishing the surface. Torsion specimens 3 mm. in diam. and 30 mm. long were made from steel 45-KhNMFA. After oil quenching from 840°, series of specimens were tempered in a salt bath at 300, 380, 400, 500, 600, and 650°. Half of each series was polished with GOI paste until no scratches could be seen at 80X. The other half was rough polished using no. 0 paper. *Abbot profilometer* readings gave av. scratch depths of 0.1  $\mu$  for the polished specimens, 1  $\mu$  for the rough specimens. Nominal and true max. shear values in torsion were plotted vs. annealing temp. for the polished and rough specimens. The polished specimens' values were higher by a factor of 14 at 300° and by a factor of 2 at 650°. The same results were obtained when the rough specimen was made by roughening with no. 0 paper a previously smooth specimen. Thus, even minor scratches on the surface can affect the plasticity of fairly ductile steel.

A. G. Guy

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

YAKUTOVICH, M. V.

Feb 49

USSR/Metals

Steel - Plastic Deformation  
Surface Finishes

"The Plasticity of Steel and Finishing of Surfaces," F. P. Rybalko, M. V. Yakutovich, Inst Phys of Metals, Ural Affiliate, Acad Sci USSR, 2 pp

"Dok Ak Nauk SSSR" Vol LXIV, No 5

Experimentally shows that the plasticity of a material depends greatly on the purity obtained in processing the surface. Submitted by Acad I. P. Bardin, 15 Dec 48.

PA 29/49T73

3

M

**INFLUENCE OF TWINNING ON THE BRITTLE FRACTURE OF ZINC CRYSTALS.** E. E. Yakovleva and N. V. Yakubovich (Zhar. Tekhn. Fiziki, 1980, 20, (4), 420-423; Physico Abstr., 1981, 84, 242).—(In Russian). The process of twinning during compression of Zn crystals orientated with their hexagonal axis in the direction of compression facilitates rupture in those cases where conditions prevent deformation by slip. It may be assumed that the same effect of the twinning is observed in the tensile stressing of Zn crystals which have their hexagonal axis  $\perp$  the direction of the tensile stress applied, when slip deformation is excluded.

paper, 1982

POLYMER AND PROPERTY INDEX																																																																													
<div style="display: flex; justify-content: space-between;"> <span>SA</span> <span>A 53 FF</span> </div> <p>539.42 : 548.24</p> <p>2104. Influence of twinning on the brittle failure of zinc crystals. E. N. YAKOVLEV AND M. V. YAKOVLEV. <i>J. Tech. Phys., USSR</i>, 30, 4803 (April, 1950) In Russian.</p> <p>The process of twinning under compression of Zn crystals orientated with their hexagonal axis along the direction of compression facilitates rupture in those cases where the deformation occurs in conditions preventing a deformation by slip. It may be assumed that the same effect of the twinning may be observed in the tensile stressing of Zn crystals with their hexagonal axis perpendicular to the direction of the tensile stress applied, when slip deformation is excluded, as a similar argument must hold in this case.</p> <p style="text-align: right;">B. F. AHAUS</p>																																																																													
ASA-SLA METALLURGICAL LITERATURE CLASSIFICATION																																																																													
<table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>																										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26																										
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YAKUTOVICH, M. V.

Apr 50

USSR/Physics-Twinning  
Strength of Materials

"Influence of Twinning Upon the Brittle Collapse of Zinc Crystals," E. S. Yakovleva, M. V. Yakutovich

"Zhur Tekh Fiz" Vol XX, No 4, pp 420-423

It can be stated that effect of twinning must be observed during tension of zinc crystals, which are oriented (hexagonal axis) perpendicularly to direction of tension, and during absence of deformation by slippage, since reasoning remains the same. Submitted 30 Nov 48.

PA 163798

YAKUTOVICH, M.V. 1

6

(4)  
THE STUDY OF DEFORMED ALUMINUM SINGLE CRYSTALS WITH AN ELECTRON MICROSCOPE. (Izuchenie Deformirovannykh Kristallov Alyuminiya v Elektronnom Mikroskope). M. V. Yakutovich, S. S. Yakovleva, R. M. Lerinman, and N. N. Bulnov. Translated by A. Pingell from Izvest. Akad. Nauk, S.S.S.R. Ser. Fiz. 15, 383-6 (1951). 10p. (NRL-Trans-453)

T 11/27/54

Ua Katoyle A M V.

History of the Republic of Malawi Under Stress  
The Republic of Malawi is a small, landlocked country in  
southern Africa. It is a young nation, having gained  
independence from British colonial rule in 1963. The  
country is known for its rich cultural heritage and its  
natural beauty. However, the Republic of Malawi has  
faced significant challenges in its history, particularly  
in the areas of political stability, economic development,  
and social progress. The country has experienced  
periods of political unrest and has struggled with  
poverty and underdevelopment. The Republic of Malawi  
is a country that has a long and complex history, and  
it is one that is still facing many challenges today.

YAKOVLEV, M.V.  
LIVOVSKIY, P.G.; PAL'MOV, Ye.V., professor doktor, retsenzent; KRASNOV, K.V., inzhener, retsenzent; ZAKROCHINSKIY, S.V., inzhener, retsenzent; SHKLOVSKIY, M.B., inzhener, retsenzent; BOGACHEV, I.N., professor doktor tekhnicheskikh nauk, redaktor; AKHUN, A.I., kandidat tekhnicheskikh nauk, redaktor; BARANOV, V.M., kandidat tekhnicheskikh nauk, redaktor; RYZHIKOV, A.A., kandidat tekhnicheskikh nauk, redaktor; FILIPPOV, A.S., kandidat tekhnicheskikh nauk, redaktor; CHERNOBROVKIN, V.P., kandidat tekhnicheskikh nauk, redaktor; YAKUTOVICH, M.V., kandidat tekhnicheskikh nauk, redaktor; GRISHCHENKO, M.F., inzhener, redaktor; ZASLAVSKIY, I.A., inzhener, redaktor; KROKHOLEV, V.Z., inzhener, redaktor; BOSKIN, M.D., inzhener, redaktor.

[Manual for the mechanic in a metallurgical plant] Spravochnoe rukovodstvo mekhanika metallurgicheskogo zavoda. Izd.3., ispr.1 dep. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1953. 1112 p. (MLRA 7:4)  
(Mechanical engineering--Handbooks, manuals, etc.)



**USSR :**

Effect of cleanness of the milled surface on the plasticity of steels during torsion testing. P. P. Rybalko and M. V. Yakutovich. *Zhur. Tekh. Fiz.* 23, 766-70 (1953).—It was found that small graduation lines, statistically distributed on the surface of a steel sample undergoing torsion, have a great effect on the plasticity of steels, even when the deformation to destruction is measured in tenths of a per cent. Gladys S. Macy

YAKUTOVICH, M.V.

USSR.

The localization of deformation and the determination of the plasticity of steels during torsion and tension. E. P. Rybakov and M. V. Yakutovich. Zhur. Tekh. Fiz. 28, 175-4 (1958). For the first time, the discontinuity of the distribution of deformation along the length of a sample of steel during torsion was established. An explanation was given for the discrepancy between the conventional max. shear detd. by torsion expts., and the max. shear, detd. by tension expts. Gladys B. Macy.

YAKUTOVICH, M. V.

USSR/Engineering - Metallurgy,  
Deformation of Al

21 Jun 53

"Role of Grain Boundaries in the Process of Plastic  
Deformation of Aluminum," E. S. Yakovleva and M. V.  
Yakutovich

DAN SSSR, Vol 90, No 6, pp 1027-1029

Investigate effect of temp on localization of de-  
formation along grain boundaries of Al using two  
methods. At low temp and fast deformation the grain  
boundaries resist sliding deformation; at high temp  
and slow deformation, the grain boundaries are the  
weakest spots. Presented by Acad I. P. Bardin  
28 Apr 53.

269T47

*Translation B- 77406, 21 June 54*

Acoustic Method for Determining the Modulus of Normal Elasticity A. I. Moseev and M. V. Yakovlev. *Izv. Akad. Nauk SSSR*

The test piece is a single crystal of transformer steel at temperature of 100°C. Results are presented. The

AUTHORS: Rybalko, F. P. and Yakutovich, M. V.

126-3-9/34

TITLE: Stable and non-stable macro-localisation of the plastic deformation in the case of static torsion. (Ustoychivaya i neustoychivaya makrolokalizatsiya plasticheskoy deformatsii pri staticheskom kruchenii).

PERIODICAL: "Fizika Metallov i Metallovedeniye" (Physics of Metals and Metallurgy), 1957, Vol.4, No.3, pp.450-454 (U.S.S.R.)

ABSTRACT: This paper is devoted to describing the phenomenon of unstable localisation of the plastic deformation during static torsion and its relation with stable localised deformation. In addition, a number of problems are discussed on the basis of literature on localised plastic deformation. The experiments consisted in investigating deformation by static torsion of carefully polished cylindrical specimens with a constancy of the size of the active diameter of 0.017 to 0.03% by means of a method described in earlier work of the authors (3-6). The specimens were made of Steel 310 and 34XHMΦ A tempered at various temperatures, as described in earlier papers (3-5). It is concluded that during plastic deformation and during macro-shear failure two types of localised deformation can be detected, stable and unstable deformation. The physical cause of unstable

Card 1/3

Stable and non-stable macro-localisation of the plastic deformation in the case of static torsion. (Cont.) 126-3-9/34

localisation of plastic deformation is the presence in the material of macro-structural non-uniformities, whilst the cause of the stable localisation is physical softening. In the case of macro-structural (and in some cases also of geometrically) non-uniform specimens, the wave of unstable localisation of the deformation leads to a state of equal strength; cylindrical specimens which get into the state of equal strength during static torsion deform uniformly for a considerable time. After a period of uniform deformation, long before failure and occurrence of macro-cracks, physical softening sets in, the characteristic of which is stable localisation of the plastic deformation. If the specimen contains an external stress concentrator, it will affect the location of the stable localised deformation but it cannot stop the material, at this stage of preparation, from developing macro-failures. If the accuracy of the given shape of the specimens is high and there are no rough marks on the active surface of the specimen, the appearance of unstable localised deformation is an indication of the existence of macro-structural non-uniformity. There is one figure and 10 references, 9 of which are Slavic.

Card 2/3

YAKUTOVICH, M.V.

18(7)

(p. 7, 8)

PHASE I BOOK EXPLOITATION

SOV/1340

Akademiya nauk SSSR. Ural'skiy filial. Institut fiziki metallov

Voprosy teorii zharoprochnosti metallicheskih splavov (Problems in the Theory of Heat Resistance of Metal Alloys) Moscow, Izd-vo AN SSSR, 1958. 160 p. (Series: Its: Trudy, vyp. 19) 3,500 copies printed.

Eds.: Arkharov, V.I. and Sadovskiy, V.D.; Ed. of Publishing House: Rzhiznikov, V.S.; Tech. Ed.: Novichkova, N.D.

PURPOSE: This book is intended for specialists in the field of physical metallurgy.

COVERAGE: (Abstract of Article 1) The articles in this book constitute reports on extensive studies, conducted between 1949 and 1954 by the Institute of Physical Metallurgy at the Urals Branch of the Academy of Sciences, USSR, and devoted to the development of a general theory of heat resistance. A strong need was felt for such a theory because of insufficient knowledge of the physical mechanism of deformation

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# Problems in the Theory of Heat Resistance of Metal Alloys SOV/1340

phenomena occurring in materials at high temperatures and the resultant difficulty of explaining the frequent difference in behavior of materials under test conditions and under actual operating conditions. The studies centered around the investigation of two basic assumptions: 1) localization of the processes of high-temperature plastic deformation in the zones of structural heterogeneity in a solid body undergoing deformation 2) internal adsorption of certain dissolved addition agents in the vicinity of these heterogeneities. The combined effect of these two phenomena on the heat resistance of the material is very important, because they are both localized in the same zones of the alloy. Actually, deformation develops in zones where the composition of the alloy, as a result of internal adsorption, is quite different from the average composition of the alloy. Another important factor in this connection is the fact that the effect of internal adsorption depends on previous heat treatment. From this it follows that small additions, frequently even those

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Problems in the Theory of Heat Resistance of Metal Alloys SOV/1340

too small to be detected by analysis, may considerably change the heat resistance of the alloy, in varying degrees, depending on the heat treatment. It may be concluded that the main factor determining the heat resistance of a crystal is the interatomic bonds in the lattice, which bonds change according to the composition of the solid solution. The first stage of the investigations has been completed and forms the subject matter of the present collection of papers. Results indicate that the basic assumptions have been verified to a considerable extent. These two phenomena, as related to such heterogeneities as transcrystallite joining in polycrystalline alloys (under specified conditions of deformation) have proved to be of decisive importance and can be used as the basis of a hypothesis on how heat resistance is affected by the localization of deformation and by internal adsorption of addition agents in the vicinity of the more minute structural heterogeneities, i.e., the elements of subcrystallite structure (further work is indicated in this direction). Article 2 of the collection gives an

Card 3/10

Problems in the Theory of Heat Resistance of Metal Alloys SOV/1340

extensive treatment of the basis of attack on the problem of heat resistance as investigated at the Institute, together with a detailed discussion of the guiding principle underlying all aspects of the study. Articles 3 and 4 attempt to explain the high adsorbability of small additions of a number of elements (e.g., Mo, W, Nb, Ti, Al, B) in iron-chrome-nickel austenite. Article 4 is concerned specifically with the diffusional mobility of one of the main components of the alloy (nickel) in transcrystallite transition zones, an important characteristic as regards heat resistance, inasmuch as plastic deformation at high temperatures [apparently] proceeds by a diffusion-type mechanism. Confirmation of this hypothesis was obtained by analysis of experimental data on high-temperature stress relaxation. This analysis is the subject of Article 10, whereas Article 9 is directly concerned with experimental work on the measurement of stress relaxation. The correlation between data on the transcrystallite diffusional mobility of nickel and on stress relaxation in the investigated alloys is

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Problems in the Theory of Heat Resistance of Metal Alloys SOV/1340

given in Article 11. Article 8 describes methods of measuring high-temperature stress relaxation. Article 5 gives experimental data on the effect of small additions of elements of high internal adsorbability on creep in solid solutions. In this study it is shown that under conditions of low stresses, when the deformation is markedly localized in the transcrystallite transition zones, the adsorption-prone addition agent exhibits a strengthening effect. With high stresses, when the deformation is mainly of the slip type and is distributed throughout the crystallite, internal adsorption of the addition element ceases, but in certain cases of high stress the addition element may lower the resistance of the material to flow. Additional data on this question are given in Articles 6 and 14. Article 7 presents the results of an attempt at experimental microinterferometric confirmation of the occurrence of changes in the distribution of strain in the grain of metal containing small amounts of addition agents. The first small additions produce a marked effect on the deformation, which (with low stresses) is

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Problems in the Theory of Heat Resistance of Metal Alloys SOV/1340

localized at the intercrystallite boundaries; the alloy is strengthened. An increase in the amount of the addition agents results in a coarsening of the crystallites, which increase the rate of flow. These results also agree with the basic hypothesis concerning the effect of internal adsorption on heat resistance and supplement the hypothesis with indications of the range of strain conditions under which the adsorption phenomenon plays a significant role. In the course of investigating stress relaxation, an unusual effect was observed in certain alloys, namely "negative relaxation", consisting in the growth of stresses with time, instead of the usual natural decrease. This effect has been explained by assuming that under the conditions of the relaxation test a phase transformation takes place in the material, resulting in a lowering of the specific volume (discussed in Article 12). This effect received further confirmation in the study reported in Article 13. In Article 16 the author examines the possibility of extending the basic idea of these investigations to subcrystallite structural heterogeneities, especially to those which arise and develop in aging. Since the majority of heat-resistant alloys undergo aging, the internal-adsorption phenomenon becomes a problem of great importance.

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Problems in the Theory of Heat Resistance of Metal Alloys SOV/1340

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Card 9/10

S/019/62/000/006/020/083  
A156/A126

AUTHORS: Kardonskiy, V.M., Potemkin, K.D., Perkass, M.D., Teymer, D.A., and  
Yakutovich, M.V.

TITLE: Method of producing high-strength steel strip

PERIODICAL: Byulleten' izobreteniy, no. 6, 1962, 29

TEXT: Class 18c, 6<sub>10</sub>. No. 145606 (727680/22 of April 17, 1961). A method of producing high-strength steel strip, the distinctive feature of which consists in that for obtaining a strip possessing high-strength properties with an ultimate strength of 300 kg/mm<sup>2</sup> and more, use is made of a combination of patenting and subsequent cold rolling of the strip, with the result that the metal is left in a highly dispersed state.

Card 1/1



5.1125

1.1600

29955

S/019/61/000/019/051/091

A154/A126

AUTHORS:

Golin, Yu. L., Morokhov, I. D., Savchuk, A. I., Yakutovich, M. V.,  
Lapcovok, V. N., Rybakova, N. S.

TITLE:

A method of making metal gauzes

PERIODICAL:

Byulleten' izobreteniy, no. 19, 1961, 48

TEXT:

Class 40b, 330. No. 141627 (720022/22 of March 1, 1961). A method of making metal gauzes for filtering gases and liquids from strip metal obtained by rolling a mixture of powdered metals or alloys, distinguished by the fact that, in order to reduce the prime cost of production of the gauzes, the strip obtained by rolling the powders is sintered at a temperature higher than the melting point of the lowest-melting component.

X

Card 1/1

PAVLOV, V.A.; YAKUTOVICH, M.V., otv. red.; MEDER, V.I., red. izd-va;  
FREMID, V.M., tekhn. red.

[Physical principles of the plastic deformation of metals]  
Fizicheskie osnovy plasticheskoi deformatsii metallov. Mo-  
skva, Izd-vo Akad. nauk SSSR, 1962. 198 p. (MIRA 15:11)  
(Metallography) (Dislocations in metals)

YAKUTOVICH, M. V.; MEYERSON, G. A.; IGNATYEV, B. G.; KURBATOV, G. P.; et al

"Uranium Prepared by Powder Metallurgy Techniques."

report submitted for 2nd Intl Conf, Peaceful Uses of Atomic Energy, Geneva,  
31 Aug-9 Sep 64.

21c  
L 18316-65 EMT(j)/EMT(l)/EMP(a)/ENG(k)/ENT(m)/EPP(c)/EPP(n)-2/EPR/EEC(b)-2/ENP(b)  
Pz-6/Pr-4/Ps-4/Pu-4 IJP(o)/APWL/SSD WJ/AT/WH  
S/0089/64/017/005/0329/0335  
ACCESSION NR: AP4049532

AUTHOR: Millionshchikov, M. D.; Gverdtsiteli, I. G.; Abramov, A. S.; Gorlov, L. V.; Gubanov, Yu. D.; Yefremov, A. A.; Zhukov, V. F.; Ivanov, V. Ye.; Kovy\*rzin, V. K.; Koptelov, Ye. A.; Kosovskiy, V. G.; Kukharkin, N. Ye.; Kucherov, R. Ya.; Laly\*kin, S. P.; Merkin, V. I.; Nechayev, Yu. A.; Pozdnyakov, B. S.; Ponomarev-Stepnov, N. N.; Samarin, Ye. N.; Serov, V. Ya.; Usov, V. A.; Fedin, V. G.; Yakovlev, V. V.; Yakutovich, M. V.; Khodakov, V. A.; Kompaniyets, G. V.

TITLE: The "Romashka" high-temperature reactor-converter /9

SOURCE: Atomnaya energiya, v. 17, no. 5, 1964, 329-335

TOPIC TAGS: nuclear power reactor, reactor feasibility study, research reactor, thermoelectric converter/Romashka

ABSTRACT: The authors briefly describe the construction, parameters, test results, and operating experience of the "Romashka" reactor-

Cord 1/7

18316-65  
ACCESSION NR: AP4049532

converter unit, which has been in operation at the Kurchatov Atomic Energy Institute since August 1964. The fuel used is uranium dioxide enriched to 90%  $U^{235}$ . Graphite and beryllium are used as reflectors. Electricity is generated by silicon-germanium semiconductor thermocouples distributed on the outer surface of the reflector and connected in four groups which can be connected in series or in parallel. The temperatures of the active zone and outer surface are 1770 and 1000C, respectively. The power ratings are 0.50-0.80 kW electric and 40 kW thermal, the maximum current (parallel connection) is 88 A, the neutron flux is  $10^{13}$  neut/cm<sup>2</sup> sec in the center of the active zone and  $7 \times 10^{12}$  on its boundary. The reactor has a negative temperature reactivity coefficient. The equipment has high inherent stability and requires no external regulator, and little change was observed in the thermocouple properties after 2500 hours of operation. Tests on the equipment parameters are continuing, and the results are being analyzed for use in future designs. Orig. art. has: 8 figures and 1 formula.

Card 2/3

IGNAT'YEV, B. G.; NEZHEVENKO, L. V.; POLTORATSKIY, N. I.; FOMIN, G. S.; YAKUTOVICH, M. V.

"Fabrication of large Gabarit makes from refractory carbides."

paper submitted but not presented at Intl Powder Metallurgy Conf, New York City,  
14-17 June 1965.



L 35860-66

ACC NR: AP6021526

density, which averaged from 5.02 to 5.82 g/cm<sup>3</sup>. Appreciably better results were obtained in extruding and sintering plate from the same mixtures with the addition of 0.3—1.5 wt.% of NiCO<sub>3</sub> or NiC<sub>2</sub>O<sub>4</sub> activating salts. For example, the oxygen content in both sintered and unsintered specimens with activating additives was 3—4 times lower than in specimens without additives (0.05—0.09 and 0.25%, respectively). The highest density plate (about 6.3 g/cm<sup>3</sup>—94% of the theoretical) was obtained with the addition of 0.3 wt.% NiCO<sub>3</sub> or NiC<sub>2</sub>O<sub>4</sub> to a powder with a specific surface of 8 m<sup>2</sup>/g, which was extruded and subsequently sintered at 2400—2500C. Plate rolled from granulated powder with a particle size of 100—280 μ, prepared from a powder mixture plasticized with a 3% solution of 1.0 wt.% powdered rubber in benzene, was sintered at a temperature of up to 2000C in a vacuum of 10<sup>-3</sup> mm Hg and at higher temperatures (2100—2500C) in an argon atmosphere at a pressure of 300—350 mm Hg. It was found that the density of the sintered plate increased with increasing powder fineness and sintering temperature. The best results were obtained with powder ground for 96 hr (a specific surface of 8 m<sup>2</sup>/g). The 1 mm-thick plate rolled from this powder, after sintering at a temperature of 2300C or higher, had a density of 6.5 g/cm<sup>3</sup> (97% of the theoretical). Elimination of the need for activating additives and higher density of the final product are definite advantages of the second method of producing thin plate from zirconium-carbide powder. Orig. art. has: 2 figures and 8 tables. [MS]

SUB CODE: 11 13/ SUBM DATE: 29Jan66/ ORIO REF: 007/  
 OTH REF: 003/ ATD PRESS: 5037  
 Card 2/2 ///



YAKUTOVICH, V.G., provizor (Mogilev, BSSR)

"Pharmaceutical chemistry" by P.L. Senov. Reviewed by V.G. Yakutovich.  
Apt.delo 8 no.6:81-83 N-D '59. (MIRA 13:4)

(CHEMISTRY, MEDICAL AND PHARMACEUTICAL) (SENOV, P.L.)

ARZAMASTSEV, A.P.; YAKUTOVICH, V.G.

"Pharmaceutical chemistry" by M.M.Turkovich. Reviewed by A.P.Arzamastsev  
and V.G.IAkutovich. Apt. delo 11 no.2:86-87 Mr-Ap '62. (MIRA 15:5)  
(CHEMISTRY, MEDICAL AND PHARMACEUTICAL)

ACC NR: AP6015710

(A)

SOURCE CODE: UR/0413/66/000/009/0125/0125

INVENTOR: Naydis, N. M.; Avramenko, A. K.; Yakuts, B. L.; Ryzhov, L. S.; Korchin, Yu. M.; Kalyuzhnyy, O. K.; Kuchinskiy, V. A.

ORG: None

TITLE: Fuel delivery controller for internal combustion engines. Class 46, No. 181445

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 9, 1966, 125

TOPIC TAGS: engine fuel system, air temperature, fuel control

ABSTRACT: This Author's Certificate introduces: 1. A fuel delivery controller for internal combustion engines. The unit consists of a device for transmitting signals to a servomechanism, a stack of aneroid capsules and two correctors with pickups. These pickups are made in the form of bimetallic plates equipped with manual adjustment screws. Each of these bimetals varies fuel delivery as a function of air temperature. The second corrector is connected to the fuel delivery channel supplying fuel to the engine to allow for the variation in the specific weight of the fuel with temperature. 2. A modification of this controller in which transition from one type of fuel to another is simplified by a scale on the device for correcting temperature (specific weight). The indicating needle of the corrector scale can be set by a manual adjustment screw.

SUB CODE: 21/ SUBM DATE: 28Jun63

UDC; 621.43.031-441.2

Card 1/1

YAKUTSENI, V.P.

Dynamics of underground waters in the southeastern part of the  
Caspian Depression. Trudy VNIGRI no.131:303-324 '59.  
(MIRA 12:9)

(Caspian Depression--Water, Underground)

YAKUTSENI, V. P., Cand Geol-Min Sci -- (diss) "Hydrogeology of the south-eastern Caspian Region Depression in connection with the evaluation of the prospects for petroleum gas potential." Leningrad, State Topographical Engineering Publishing House, 1960, Leningrad Division. 19 pp; (Ministry of Higher and Secondary Specialist Education USSR, Leningrad Order of Lenin and Order of Labor Red Banner Mining Inst im G. V. Plekhanov, Ministry of Geology and Conservation of Resources USSR, All-Union Petroleum Scientific Research Geological Survey Inst -- VNIGRI); 200 copies; free; (KL, 24-60, 130)

MAKHMUDOV, A.Kh.; YAKUTSENI, V.P.

Methods for evaluating the reserves of helium. Neftegaz. geol.  
i geofiz. no. 10:33-36 '65. (MIRA 18:12)

1. Vsesoyuznyy neftyanoy nauchno-issledovatel'skiy geologorazvedochnyy institut, Leningrad.

YAKUTSENI, Vera Prokof'yevna; KROTOVA, V.A., nauchnyy red.; RAGINA, G.M.,  
vedushchiy red.; GENNAD'YEVA, I.M., tekhn.red.

[Hydrology of the southeastern Caspian Lowland in connection with  
oil and gas potentials] Gidrogeologiya iugo-vostoka Prikaspiiskoi  
vpadiny v svyazi s neftegazonost'iu. Leningrad, Gos.nauchno-tekhn.  
izd-vo nef't.i gorno-toplivnoi lit-ry. Leningr.otd-nie, 1961. 230 p.  
(Leningrad. Vsesoiuznyi nef'tianoi nauchno-issledovatel'skii  
geologorazvedochnyi institut. Trudy, no.167). (MIRA 14:8)  
(Caspian Lowland--Petroleum, Geology)  
(Caspian Lowland--Gas, Natural--Geology)

YAKUTSENI, V.P.; PETROVSKAYA, N.L.

Distribution of the zones of regional helium accumulation on the  
earth. Sov. geol. 8 no.1:120-131 Ja '65.

(MIRA 18:3)

1. Vsesoyuznyy neftyanoy nauchno-issledovatel'skiy geologorazvedochnyy  
institut.



YAKUTSENI, Vera Prokof'yevna; TOKAREVA, T.N., vedushchiy red.; DEM'YANENKO, V.I., tekhn.ted.

[Characteristics of the formation of helium-bearing gas fields; prospecting methods.] Zakonomernosti formirovaniia zalezhei geli-  
enosnykh gazov; k metodike poiskov. Leningrad, Gostoptekhizdat,  
1963. 130 p. (Leningrad. Vsesoiuznyi neftianoi nauchno-issledo-  
vatel'skii geologorazvedochnyi institut. Trudy, no.222).

(MIRA 17:2)

KRUGLIKOV, Nikolay, Mikhaylovich; YAKUTSENI, V.P., red.

[Hydrology of the northwestern margin of the West Siberian artesian basin.] Gidrogeologiya severo-zapadnogo borta Zapadno-Sibirskogo artezianskogo basseina. Leningrad, Nedra, 1964. 165 p. (Leningrad. Vsesoiuznyi neftianoi nauchno-issledovatel'skii geologorazvedochnyi institut. Trudy, no.238). (MIRA 18:c)

YAKUTSENI, V.P.

Principles of the classification of natural gases according to  
their helium content. Geol. nofti i gaza 9 no.8:48-53 Ag '65.  
(MIRA 18:8)

YAKUTSENT, V.P.; PETROVSKAYA, N.L.

Gas industry abroad. Gaz. prom. 9 no.11:50-52 '64.

(MIRA 17/12)

~~YAKUTSKIY~~, Nikolay

Notes of a young naturalist. Un. nat. no.9:38 S '59. .

(Animals, Habits and behavior of)

(MIRA 13:1)

h1886  
S/236/62/000/001/002/007  
D207/D307

26.2420.  
AUTHORS:

Tolutsis, V.B. and Yalutskyavichene, I.A.

TITLE:

Combined investigation of thin layers of cadmium telluride. I. Introduction. General methodological problems. Conductivity of thin layers of cadmium telluride in strong electric fields

SOURCE:

Akademiya nauk Litovskoy SSR. Trudy. Seriya B, no. 1(28), 1962, 17-31

TEXT:

CdTe is of special interest because of its high efficiency in solar energy conversion. A brief review of literature shows that the method of preparation influences strongly the structure and composition of CdTe. In the present work (reported in Parts I-V) CdTe was prepared (by V. Yasutis) by melting together (at 6000°C, followed by 1000°C) spectroscopically pure Cd and 99.998% pure Te in vacuum. This was followed by grinding the product and remelting at 1100°C (3 hours). The final product was of 99.999% purity. Thin ( $1\mu$ ) layers of CdTe were obtained by evaporation and

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D207/D307

Combined investigation ...

deposition in vacuum on cold or heated (to 350°C) quartz and other substrates. The adhesion was good on heated substrates but poor on cold ones. The adhesion was related to the characteristic temperature dependence of the linear thermal expansion coefficient of CdTe; the room-temperature value of this coefficient, measured with a MII-4 (MII-4) interference microscope, was found to be  $6.2 \times 10^{-6}$  deg<sup>-1</sup>. The combined investigation consisted of a series of measurements of various properties using the same principle. The order of measurements was carefully selected to avoid the effects of irreversible changes and most of the measurements were carried out in vacuum. The properties of CdTe layers were strongly influenced by the conditions of deposition because CdTe decomposes on evaporation into Te<sub>2</sub> and Cd and recombines again on the substrate. The nonlinearity of the current-voltage characteristics of CdTe layers in strong electric fields ( $10^5$  V/cm) was found to be principally due to heating by the fields. There are 9 figures.

ASSOCIATION:

Institut fiziki i matematiki Akademii nauk Litovskoy SSR (Institute of Physics and Mathematics, Academy of Sciences, LithSSR)  
February 23, 1961

Card 2/2

SUBMITTED:

83990

S/132/60/000/010/003/004  
A006/A001

9.9700 (2101, 2301, 3001)

AUTHOR: Yakuvpov, V. S.

TITLE: Possibilities of Geoelectric Exploration Under Permanent Frost Condition

PERIODICAL: Razvedka i okhrana nedr, 1960, No. 10, pp. 29 -32<sup>12</sup>

TEXT: Information is given on geoelectrical exploration under conditions of permanent frost in the North-East of the USSR. The frozen layer in that region is characterized by an average thickness of 200 m, a minimum temperature below the penetration of seasonal fluctuations from -4 to -10°C and the location of this limit at 15 - 30 m depth. The active layer is about one meter thick. Presently the hypothesis exists that the specific electric resistivity of frozen rocks is a function of temperature only at 0 to -2°C, and that it remains practically unchanged at a further drop of temperature. This hypothesis enables the scientists to renounce the concept that the specific electric resistivity  $\rho$  of frozen rocks depends on the temperature. The hypothesis was practically confirmed. Vertical electric probing was used to determine  $P$  values and it was found that  $\rho$ , when passing from melted to frozen state, increased several times for weakly

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A006/A001

Possibilities of Geoelectric Exploration Under Permanent Frost Condition

porous eruptive rocks, about ten times for sedimentary rocks and hundreds and thousands of times for Quaternary porous desposits. Consequently the differentiation of the  $\rho$  values of rocks and ores was usually preserved when passing to the frozen state and increased abruptly only in the case of Quaternary porous deposits. This circumstance and the absence of a dependence of  $\rho$  on temperature for lithologically homogeneous rocks makes it possible to use geoelectric exploration under conditions of permanent frost. Experiences made at the North-East of the USSR revealed the following factors of permanent frozen soil which must be taken into account when carrying out geoelectric exploration: 1. the shielding effect of the melted layer, first discovered by A. G. Tarkhov (Ref. 3). 2. the presence of seasonal fluctuations of some parameters of the geoelectrical cross section; 3. the appearance of additional electrical separation boundaries as a result of changes in the  $\rho$  values in the bottom of the frozen layer and on the boundary of melted and frozen rocks. Presently electrical exploration methods are used for the following purposes: investigation of the thickness of permanent frost layers; determination of the physical conditions

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S/132/60/000/010/003/004  
A006/A001

Possibilities of Geoelectric Exploration Under Permanent Frost Condition of the soil, and of the borders of spreading the frost layers; exploration of ore deposits; preliminary determination of Quaternary porous deposits for the correct outlining and organization of operations for placer gold exploration. Some technological recommendations are included into the information. There are 1 figure and 5 Soviet references.

ASSOCIATION: Severo-Vostochnoye geolupravleniye (North-Eastern Geological Administration).

Card 3/3

CA YAKY-SHEV, A-P.

22

Determination of cyclic content of kerosene fractions.  
R. A. Robinson and A. P. Yakyshev. *Doklady Akad. Nauk S.S.S.R.* 76, 81-4 (1971).—A new method of ring analysis is described, which is suitable for fractions b.p. 200-300°. Narrow cuts of the sample are treated twice with 4-fold amts. of 100% H<sub>2</sub>SO<sub>4</sub> for 30 min. at 0° as described earlier (Nemetkin and R., *C.A.* 34, 5639) and the aromatic hydrocarbons thus isolated are compared by phys. properties with known samples. The ring content of the sample is then deduced from the nature of the aromatic and the naphthene-paraffin portions, the latter again being identified by comparison methods. Results obtained with several samples compare well with the more tedious procedure in which catalytic hydrogenation is used for estn. of the rings (Musaev and Hal'pern, *C.A.* 33, 8363).  
G. M. Kosolapoff

YAKZHIN, ALEKSANDR ANDREYEVICH

13 December 1961

1964

GEOLOGY

DECEASED

YALAGIN, Ivan Vasil'yevich, Geroy Sotsialisticheskogo Truda; CHERNOV, Ye.,  
red.; PAVLOVA, S., tekhn.red.

[Plastering on construction sites] Shtukaturnye raboty na stroika.  
Moskva, Mosk.rabochii, 1959. 37 p. (MIRA 13:3)

1. Brigadir shtukaturov tresta "Elektrostal'stroy" (for Yalagin).  
(Plastering)

LEVICH, V.G.; YALAMOV, Yu.I.

Theory of polyelectrolyte solutions. Part 1: Low degrees of  
ionization. Zhur.fiz.khim. 36 no.5:1096-1102 My '62.  
(MIRA 15:8)

1. Institut elektrokhemii, AN SSSR.  
(Electrolyte solutions) (Polymers) (Electromotive force)

YALAMOV, Yu.I.

Electrostatic potential of spherical macroions in electrolyte  
solution. Zhur.fiz.khim. 36 no.8:1812-1814 Ag '62. (MIRA 15:8)

1. Khimiko-tekhnologicheskij institut imeni D.I.Mendeleyeva.  
(Electrolyte solutions)

LEVICH, V.G.; YALAMOV, Yu.I.

Potential distribution at the surface of a strongly ionized  
polymer macromolecule in an electrolyte solution. Dokl. AN  
SSSR 142 no.2:399-402 Ja '62. (MIRA 15:2)

1. Institut elektrokhemii AN SSSR. 2. Chlen-korrespondent  
AN SSSR (for Levich).

(Polymers)

(Electromotive force)

(Electrolyte solutions)



34480  
S/020/62/142/004/017/022  
B101/B110

5.4700 (also 1208)  
AUTHORS: Levich, V. G., Corresponding Member AS USSR, and  
Yalamov, Yu. I.

TITLE: Problems of the theory of polyelectrolytes at low degrees of  
ionization

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 142, no. 4, 1962, 851 - 854

TEXT: The discrete distribution of the charge on the surface of a  
spherical macro-ion is investigated. The interface macro-ion - electrolyte  
is assumed to be plane. The polymer I has the dielectric constant  $\epsilon_1$ ,  
the electrolyte II the dielectric constant  $\epsilon_2$ . The charge  $q$  is at a depth  $h$   
below the surface of I.  $\Delta\psi = -(4\pi/\epsilon_1)q\delta(x)\delta(y)\delta(z+h)$  (1) is written  
down for I;  $\Delta\psi = -(4\pi/\epsilon_2)\sum_{i=1}^N n_i z_i \exp(-z_i e\psi/T)$  (2) for II. Eq. (2) is  
linearized:  $\Delta\psi - \kappa^2 \psi = 0$  (3), where  $\kappa^2 = (4\pi e^2/\epsilon_2 T)\sum_{i=1}^N n_i z_i^2$ . The solution  
of Eqs. (1) and (3) in the range  $-\infty < z \leq 0$  and  $0 \leq z < \infty$  for the boundary  
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S/020/62/142/004/C17/022  
B101/B110

Problems of the theory of...

conditions  $\psi|_{z=0} = \psi|_{z=0}$ ;  $\epsilon_1 \partial \psi / \partial z|_{z=0} = \epsilon_2 \partial \psi / \partial z|_{z=0}$ ;  $\psi|_{z=\infty} = \psi|_{z=-\infty} = 0$ ,  
and for  $z \ll 1/\kappa$  produces the potential:

$\varphi(q, z) \approx [2q/(\epsilon_1 + \epsilon_2)] \left[ \exp(-\kappa \sqrt{q^2 + z^2}) / \sqrt{q^2 + z^2} \right]$ . For the repulsion  
between two charges  $q_1, q_2$  with the distance  $d$  on the surface of I holds:  
 $\Delta \psi = -(4\pi/\epsilon_1) [q_1 \delta(x) \delta(y) \delta(z+h) + q_2 \delta(x-d) \delta(y) \delta(z+h)]$ . For  $q_1 = q_2 = q$ ,  
and  $h = 0$ , the following potential is found:

$\varphi(x, y, z) = [2q/(\epsilon_1 + \epsilon_2)] \left[ \exp(-\kappa \sqrt{q^2 + z^2}) / \sqrt{q^2 + z^2} + \exp(-\kappa \sqrt{q^2 + z^2}) / \sqrt{q^2 + z^2} \right]$ ,  
where  $q = \sqrt{(x-d)^2 + y^2 + z^2}$ . The interaction between the ionic clouds  
surrounding the charges is determined from:  $p = -(\partial/\partial d)(\Phi_d - \Phi_\infty)$ .  $\Phi_d$

is the free electric energy of the system of two charges and the respective  
ionic clouds with the distance  $d$ ;  $\Phi_\infty$  corresponds to  $d = \infty$  and does not  
depend on  $d$ . Result:  $p = [2q^2/(\epsilon_1 + \epsilon_2)] (1 + \kappa d) [\exp(-\kappa d)]/d$ . Already  
for  $\kappa d \sim 1$ ,  $p$  differs little from the interaction of two punctiform charges  
in the absence of an electrolyte. With increasing ionization of a

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Problems of the theory of...

S/020/62/142/004/017/022  
B101/B110

macromolecule, the electrostatic interaction may thus have a strong effect on the configuration of macromolecule links. There are 2 figures and 6 references: 1 Soviet and 5 non-Soviet. The four references to English-language publications read as follows: G. E. Kimball, M. Cutler, H. Samelson, J. Phys. Chem., 56, no. 1, 57 (1952); J. Kagawa, M. Nagasawa, J. Polym. Sci., 16, 299 (1955); Y. Ykeda, J. Phys. Soc. Japan, 8, 49 (1953); S. Lifson, A. Katchalsky, J. Polym. Sci., 13, 43 (1954).

ASSOCIATION: Institut elektrokhimii Akademii nauk SSSR (Institute of Electrochemistry of the Academy of Sciences USSR)

SUBMITTED: October 14, 1961

✓

Card 3/3

YALAMOV, Yu.I.

Electrostatic potential of cylindrical macroions in electrolyte solutions. Koll.zhur. 25 no.3:375-378 My-Je '63. (MIRA 17:10)

I. Moskovskiy khimiko-tekhnologicheskii institut imeni D.I. Mendeleeva.

S/076/63/037/002/007/018  
B101/B186

AUTHORS:

Levich, V. G., Yalamov, Yu. I. (Moscow)

TITLE:

Determination of the potential at the surface of a cylindrical polymer macromolecule in electrolyte solution

PERIODICAL:

Zhurnal fizicheskoy khimii, v. 37, no. 2, 1963, 333-339

TEXT: The distribution of the potential is calculated for the surface of a cylindrical macromolecule in an electrolyte solution, whose length  $h$  is notably greater than its radius  $a$ . Based on the Poisson Boltzmann potential distribution in the neighborhood of a cylinder,  $\Delta\psi = -4\pi q/D$ , where  $D$  is the dielectric constant of the solution and  $q$  is the density of charge,  $e_1 \Delta\psi/kT = \ln [(x_1^2/2\beta^2) \text{sh}^2 \delta] - \alpha C_p / (\alpha C_p + 2C_{el})$  is obtained. Here  $e_1$  is the charge of the ion of a mono-monovalent electrolyte;  $x_1^2 = 4\pi n_1 e_1^2 / DkT$ , where  $n_1$  is the total of the counter-ions and electrolyte ions having a charge opposite in sign to that of the macro-ion;

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S/076/63/037/002/007/018  
B101/B186

Determination of the potential ...

$$\beta^2 = \kappa_2^2 \left[ \frac{n_1}{(n_1 + n_2)} \right]^2 \cdot f^2(2\kappa_2 a) - \kappa_1^2 \cdot 2.71/2; \quad \kappa_2^2 = 4\pi e^2 (n_1 + n_2) / kTD,$$

$e = 4.8 \cdot 10^{-10}$  cgs units;  $n_2$  is the number of electrolyte ions, the sign of which is consistent with that of the surface charge of the macro-ion at  $\Psi = 0$ ;  $f = K_1(2\kappa_2 a) / K_0(2\kappa_2 a)$ . The constant  $\delta$  is calculated from: ✓

$\text{cth } \delta = -ve^2 / kTDha\beta - \left[ \frac{n_1}{(n_1 + n_2)} \right] \kappa_2 f(2\kappa_2 a) / \beta$ , where  $\nu$  is the number of charges on the cylinder with a mean density  $|\sigma| = \nu e / 2\pi ah$ .  $C_p$  is the concentration of the polymer,  $C_{el}$  that of the electrolyte,  $\alpha$  is the degree

of ionization. The values calculated for  $e\Delta\Psi/kT$  were checked on polymethacrylic acid in NaCl solution and yielded with  $\alpha = 0.8$ ,

$a \approx 5 \cdot 10^{-8}$  cm:

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Determination of the potential ...

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concentration	$ e \Delta \Psi / kT _{\text{exp}}$	$ e \Delta \Psi / kT _{\text{theor}}$
$C_p = 0.1$ monomole/l $C_{el} = 0.1$ mole/l	$\approx 2.7$	$\approx 3.3$
$C_p = 0.05$ monomole/l $C_{el} = 0.04$ mole/l	$\approx 4.2$	$\approx 5.6$
$C_p = 0.02$ monomole/l $C_{el} = 0.01$ mole/l	$\approx 6$	$\approx 8.8$

The divergence between the experimental and the theoretical value increases with increasing dilution owing to the higher diffusivity of the double layer. For a  $\geq 10^{-7}$  cm, a better agreement may be expected also

Gard 3/4

Determination of the potential ....

S/076/63/037/002/007/018  
B101/B186

for low concentrations. There is 1 table. The most important English-language references are: R. M. Fuoss, A. Katchalsky and S. Lifson, Proc. Nat. Acad. Sci. U.S.A., 37, 579, 1951; A. Katchalsky, S. Lifson, J. Polymer Sci., 13, 43, 1954; T. Alfrey, P. W. Berg, and H. Morawetz, J. Polymer Sci., 7, 543, 1951. ✓

ASSOCIATION: Khimiko-tekhnologicheskii institut im. D. I. Mendeleyeva  
(Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: October 13, 1961

Card 4/4



YALAMOV, Yu.I.

Theory of the electrical interaction of plane surfaces with an identical discrete surface charge separated by electrolyte solution.  
Zhur. fiz.khim. 37 no.6:1393-1397 Je '63. (MLRA 16:7)

- \* 1. Institut elektrokhimii AN SSSR.  
(Electrolyte solutions) (Electromotive force)

YALAMOV, Yu.I.

Theory of the electrostatic interaction of macroions with discrete surface charge in electrolyte solutions. Zhur. fiz. khim. 37 no.5:1123-1126 My '63. (MIRA 17:1)

1. Khimiko-tehnologicheskii institut imeni D.I. Mendeleeva.

YALAMOV, Yu.I.

Electric energy of ion adsorption at the dielectric-electrolyte interface in the case of discrete surface charge. Zhur. fiz. khim. 37 no.6:1429-1432 Je '63. (MIRA 16:7)

1. Institut elektrokhemii AN SSSR.  
(Dielectrics) (Electrolytes) (Adsorption)

DERYAGIN, B.V.; YALANOV, Yu.I.

Theory of the thermophoresis of moderately large aerosol particles. Dokl. AN SSSR 155 no. 4:886-889 Ap '64. (MIRA 17:5)

1. Laboratoriya poverkhnostnykh yavleniy Instituta fizicheskoy khimii AN SSSR. 2. Chlen-korrespondent AN SSSR (for Deryagin).

YALAMOV, Yu.I.; MALAYEV, A.M.

Effect of the discreteness of surface charge on the electro-  
static potential of macroions in electrolyte solutions.  
Zhur. fiz. khim. 38 no.4:963-967 Ap '64. (MIRA 17:6)

1. Akademiya nauk SSSR, Institut fizicheskoy khimii.

YALAMOV, Yu.I.

Theory of the electrostatic interaction of macrcions with  
different discrete surface charge in an electrolyte solution.  
Zhur. fiz. khim. 38 no.2:463-467 F '64. (MIRA 17:8)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni  
Mendeleyeva.

DERYAGIN, B.V.; YALAMOV, Yu.I.

Theory of thermomolecular pressure drop and thermotranspiration (thermal osmosis) of gases in moderately wide capillaries.  
Dokl. AN SSSR 157 no.4:940-943 Ag '64 (MIRA 17:8)

1. Institut fizicheskoy khimii AN SSSR. 2. Chlen-korrespondent  
AN SSSR (for Deryagin).

L 53009-65 ENT(1)/ENT(m)/EEO(t)/EWA(m)-2

UR/0020/65/161/003/0572/0574

ACCESSION NR: AP5010576

Corresponding member AN SSSR)

SOURCE: AN SSSR. LOMADY, V. I.

TOPIC TAGS: temperature stress, kinetic theory, gas heating, temperature gradient, Pascal's law

ABSTRACT: The authors derive a rigorous expression for the stress tensor in a gas in which there is a temperature gradient, and show, retaining terms that are quadratic in the temperature gradient, that the stress tensor in the gas is isotropic. This contradicts Maxwell's theory, in which the second order terms have been neglected, and which leads to an anisotropy of the pressure in different directions, thus contradicting Pascal's law. Since experimental results obtained at the Laboratory of Physical Chemistry of the Institute of Physical Chemistry (Institute of Physical Chemistry) of the USSR Academy of Sciences are in agreement with the results of the authors, the latter are discussed in the article.

Card 1/2



with investigation was in order as a result of analyzing the second or third  
Orig. art. has: 25 formulas.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical  
Chemistry, Academy of Sciences SSSR)

SUBMITTED: 11Nov64

ENCL: 00

SUB CODE: 11

NR REF SOV: 004

OTHER: 014

L 16962-66 ENT(m)/T DS/WW  
ACC NR: AP6009022

SOURCE CODE: UR/0020/65/165/002/0364/0367

AUTHOR: Yalamov, Yu. I.; Deryagin, B. V. (Corresponding member AN SSSR)

ORG: Institute of Physical Chemistry, Academy of Sciences, SSSR (Institut fizicheskoy khimii Akademii nauk SSSR)

TITLE: Theory of diffusion phoresis of large nonvolatile aerosol particles

SOURCE: AN SSSR. Doklady, v. 165, no. 2, 1965, 364-367

TOPIC TAGS: aerosol, gas diffusion, applied mathematics, entropy

ABSTRACT: A previous work developed the theory of the diffusion phoresis of small aerosol particles ( $Kn \equiv \lambda_i/R \gg 1$ ), where  $R$  is the radius of the particle and  $\lambda_i$  is the mean free path of a molecule of the  $i$ th component of a binary mixture. Brock has attempted to calculate the rate of the diffusion phoresis of large particles. Taking into account the effect of "diffusion phoretic slip," he mistakenly assumed that the velocity distribution of the gas molecules in collision on the surface of an aerosol particle did not differ substantially from the volumetric. In the present paper, the rate of diffusion phoresis for large particles is found from the kinetic equations for the transfer of a gas through an "aerosol barrier" separating two vessels. The temperature is everywhere equal to  $T$ . Between the two vessels there are maintained differences in concentration of the first and second gases,  $\Delta C_1$  and  $\Delta C_2$ , and of the pressure  $\Delta p$ . Here,  $C_1 = n_1/n$  and  $C_2 = n_2/n$ , where  $n_1$

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UDC: 541.12-533.7

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ACC NR: AP6009022

and  $n_2$  are the number of molecules of a component of the mixture in unit volume,  $n = n_1 + n_2$ . The rate of formation of entropy  $\Delta S$  can in this case be expressed in the form:

$$\Delta \dot{S} = -I_1 \frac{\Delta \mu_1}{T} - I_2 \frac{\Delta \mu_2}{T}, \quad (1)$$

where  $I_1 = n_1 \bar{v}_1$  and  $I_2 = n_2 \bar{v}_2$  are the volumetric gas flows through the barrier,  $\bar{v}_1$  and  $\bar{v}_2$  are the average linear components of the velocities of the molecules in a direction normal to the barrier, and  $\Delta \mu_1$  and  $\Delta \mu_2$  are the differences in the chemical potentials. After a lengthy mathematical development, the authors arrive at the following expression for the rate of diffusion phoresis of aerosol particles relative to the gas:

$$V_D = -L_{11} \frac{n(4m_2 - m_1)}{3p} \text{grad } C_1. \quad (36)$$

From Equation 36, we get for the diffusion phoretic force on a particle:

$$F_D = 6.47 R V_D. \quad (37)$$

It is concluded that the transitional section between the conditions for "small" and "large" particles is very narrow. Orig. art. has: 2 figures and 37 formulas.

SUB CODE: 20 / SUBM DATE: 04May65 / ORIG REF: 015 / OTH REF: 007

Card 2/2 vmb

YALANSKIY, A.

TYSHLER, I., zaveduyushchiy; YALANSKIY, A., inzhener.

Regulation of working capital norms for tree nurseries. Zhil.-kom. khoz.  
3 no.5:20 My '53. (MLBA 6:7)

1. Planovo-ekonomicheskiy sektor Stavropol'skogo kraykomkhoza (for Tyshler).
2. Blagoustroyatvo Stavropol'skogo kraykomkhoza.  
(Nurseries (Horticulture))

YALANSKIY, N., inzh.

Crack filler. Zhil.-kom. khoz. 11 no.11:26 H '61.  
(MIRA 16:7)

(Moscow—Streets—Maintenance and repair)

YALANSKIY, N.

Asphalt heater attached to the chassis of the GAZ-69 truck.  
Zhil.-kom. khoz. 12 no.1:29 Ja '62. (MIRA 15:6)  
(Road machinery)

YALANSKIY, N.I.

Modernizing the PU-8 sweeping and cleaning machine. Gor. khoz. Mosk.  
35 no.6:40-41 Je '61. (MIRA 14:7)  
(Moscow—Street cleaning machinery)

YALAYEV, Askhat, rabochiy

Eight machine tools do the work of thirty. Grazhd.av. 18 no.8:3  
Ag '61. (MIRA 14:8)

(Machine tools--Technological innovations)



PLOTNIKOV, N.N.; YALDYGINA, Z.S.

Recent developments in experimental therapy of opisthorchiasis;  
preliminary report. Med. paraz. i paraz. bol. 31 no.6:680-682  
N-D '62. (MIRA 17:11)

1. Iz klinicheskogo otdela Instituta meditsinskoy parazitologii i  
tropical'skoy meditsiny imeni Martsinovskogo (dir. - prof. P.G.  
Sergiyev) i parazitologicheskoy laboratorii filiala Omakogo insti-  
tuta prirodnoochagovykh infektsiy v Tyumeni (dir. V.N. Shpil'ko).

PLOTNIKOV, N.N.; ZERCHANINOV, L.K.; YALDYGINA, Z.S.

Experimental treatment of opisthorchosis with hexachloro-p-xylene.  
Report No.2. Med.paraz.i paraz.bol. 33 no.4:387-392 J1-Ag '64.  
(MIRA 18:3)

1. Klinicheskiy otdel Instituta meditsinskoy parazitologii i  
tropicheskoy meditsiny imeni Martsinovskogo i parazitologicheskii  
otdel filiala Omskogo instituta prirodnoochagovykh infektsiy v  
Tyumeni.

YALDYGINA, Z.S.; TROFIMOVA, Ye.V.; BURKOVA, P.A.

Experience with the eradication of diphyllototriasis foci in  
Nenets National Area of Archangel Province. Med.paraz.i paraz.hol.  
33 no.4:452-454 J1-Ag '64. (MIRA 18:3)

1. Filial Omskogo nauchno-issledovatel'skogo instituta prirodnookhogo-  
vykh infektsiy v Tyumeni, Arkhangel'skiy institut epidemiologii,  
mikrobiologii i gigiyeny i Arkhangel'skaya oblastnaya sanitarno-  
epidemiologicheskaya stantsiya.

YALEVSKIY, D.

Let's talk about assumed obligations. Sov.shakht. 10 no.4:  
19-20 Ap 1961. (MIRA 14:9)

1. Nachal'nik proizvodstvennogo otdela kombinata Kuzbassugol'.  
(Kuznets Basin--Coal mines and mining--Labor productivity)

YALEVSKIY, D.B.; gornyy inzhener; TREYEROV, D.M., bukhgalter; SKORUBSKIY, N.I.

"Analysis of expenditures in money and material in coal-mining costs"  
by V. I. Beliaev. Reviewed by D.B. Ialevskii, D.M. Treierov, N.I.  
Skorubskii. Gor. zhur. no.5:78-79 My '60. (MIRA 14:3)

1. Kombinat Kuzbassugol', g. Kemerovo (for Yalovski and Treyyerov).
2. Geologicheskoye upravleniye tsentral'nykh rayonov pri Sovete  
Ministrov RSFSR (for Skorubskiy).  
(Mining industry and finance)  
(Beliaev, V.I.)

GRAFOV, L.Ye., gornyy inzh.; CORBUSHIN, V.I., V.I.; ZARANKIN, N.Ye.;  
DUDNIK, G.N.; BARONSKIY, I.V.; KOSTYUKOVSKIY, V.Ya. [deceased];  
LINDENAU, N.I.; BIRYUKOV, R.A.; LISKOVETS, A.R.; MURAV'YEV,  
V.P.; FESUN, V.A.; BERDYUGIN, V.A.; BEREZNYAK, M.M.; VASIL'YEV,  
Ye.I.; KOLLODIY, K.K.; IL'CHENKO, D.F.; YALEVSKIY, D.B.;  
GERASIMOV, V.P.; IVANOV, V.V.; GAVRILOV, G.V.; SUROVA, V.A., red.  
izd-va; OSVAL'D, E.Ya., red. izd-va; PROZOROVSKAYA, V.L., tekhn.  
red.

[Development and improvement in the technology of coal production]  
Razvitie i sovershenstvovanie tekhniki dobychi uгля. Moskva, Gos-  
gortekhnizdat, 1962. 359 p. (MIRA 16:2)  
(Kuznets Basin—Coal mines and mining)

YALEVSKIY, D.; POSPELOV, I.; KUZNETSOV, A.

What kind of daily assignment organization? Answering S. Ageev..  
(MIRA 13:7)  
Mast.ugl. 9 no.7:7-8 JI '60.

1. Nachal'nik proizvodstvennogo otdela kombinata Kuzbassugol'.  
(Mine management)  
(Ageev, S.)

YALEVSKIY, D.B., gornyy inzh.; TREYEROV, D.M., glavnyy bukhgalter

Necessary and useful book. ("Analysis of material and financial expenditures in coal mining costs" by V.I. Beliaev. Reviewed by D.B. Ialevskii, D.M. Treorov). Ugol' 35 no.9:63-64 S '60. (MIRA 13:10)

1. Kombinat Kuzbassugol'.  
(Coal mines and mining---Costs)  
(Beliaev, V.I.)



KOVACHEVICH, P.M.; YALEVSKIY, V.D.

Affairs and people of the "Polysayevskaya-3" mine. Ugol' 36 no.4:  
5-7 Ap '61. (MIRA 14:5)

1. Zamestitel' nachal'nika kombinata Kuzbassugol' (for Kovachevich).
2. Nachal'nik shakhty "Polysayevskaya -3" (for Yallevskiy).  
(Kuznetsk Basin—Coal mines and mining)

BYKOV, A.P.; VORONINA, N.G.; YALI, P.I.

Manufacture of nonwoven towels. Tekst. prom. 25 no.10:56  
O '65. (MIRA 18:10)

1. Nachal'nik TSentral'noy nauchno-issledovatel'skoy laboratorii Khersonskogo khlopchatobumazhnogo kombinata (for Bykov).
2. Nachal'nik laboratorii tkachestva TSentral'noy nauchno-issledovatel'skoy laboratorii Khersonskogo khlopchatobumazhnogo kombinata (for Voronina).
3. Starshiy inzhener TSentral'noy nauchno-issledovatel'skoy laboratorii Khersonskogo khlopchatobumazhnogo kombinata (for Yali).

*YALIMOV I.I.*

USSR /Chemical Technology, Chemical Products  
and Their Application

I-31

Fermentation industry

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 32907

Author : Yalimov I.I.

Title : Cooling of Filter-Press During Bottling of  
Champagne.

Orig Pub: Vinodeliye i vinogradarstvo SSSR, 1956, No 7,  
57-58

Abstract: Description of an improvement in the design of  
the filter-press which prevents an elevation  
of the temperature of the champagne and improves

Card 1/3

*possibly YAKIMOV, I.I.*

USSR /Chemical Technology, Chemical Products  
and Their Application

I-31

Fermentation industry

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 32907

its quality, during the passage from settling tank to bottling machine. Along the forward end and the sides of the filter-press  $1\frac{1}{2}$  inch pipes have been provided through which brine, at  $-8$  to  $-10^{\circ}$ , is circulated. The filter is enclosed in a dismountable housing consisting of three separate panels held together by hinged bolts and wing-nuts. Each panel is made of two sheets of roofing iron with a heat-insulating interlayer. The cooling of the filter is started several hours before the bottling of the champagne is initiated, and continues until the bottling is completed. At the

Card 2/3

USSR /Chemical Technology. Chemical Products  
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Fermentation industry

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 32907

beginning of the bottling the temperature does  
not exceed 0°, and after one hour it drops to  
- 2° and stays at this level. Two photographs  
are shown.

Card 3/3

GUREVICH, Ye., inzh.; SHUMELISHSKIY, M., inzh.; YALIMOVA, Ye., inzh.

Single-stage compressors using Freon 22 at low-boiling temperatures.  
Khol.tekh. 35 no.5:24-29 S-O '58. (MIRA 11:11)

1. Tsentral'noye konstruktorskoye byuro kholodil'nogo mashinostroyeniya  
(for Gurevich). 2. Moskovskiy zavod "Kompessor" (for Shumelishskiy,  
Yalimova).

(Refrigeration and refrigerating machinery) (Methane)

DUBROVIN, R.; YALIN, M.

Gift from English miners. Sov. shakh. 11 no.10:35 0 '62.  
(MIRA 15:9)

(Visitors, British) (Phonorecords)

YALIN, R.I., kandidat meditsinskikh nauk

Modified apparatus for fluoroscopy in daylight (locoscope). Vest.  
rent. 1 rad. no.5:76-78 S-O '54. (MLRA 7:12)

(FLUOROSCOPY, apparatus and instruments,  
appar. for x-ray exam. in daylight)



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YALIZAROV, B.I.; POMERANTS, D.M.; SKOTNIKOV, V.V.

Scientific and technical conference on annealing in hot media and  
intermediate transformations of austenite. Metalloved. 1 obr. met.  
no.5:58-63 My '58. (MIRA 11:5)

(Steel--Heat treatment)

YALKIND, S.Ya.; ANDZHAPARIDZE, O.G.; BOGOMOLOVA, N.N.; FOKINA, A.M.

Morphological and cytochemical investigations on the effects of tick-borne encephalitis virus on cells from tissue cultures. Acta virol. Engl. Ed. Praha 6 no.5:447-451 S '62.

1. The Moscow Scientific Research Institute of Viral Preparations,  
Moscow U.S.S.R.

(ENCEPHALITIS, EPIDEMIC virol.)

YAL'KOV, V.I. I GROSS, E.F.

24763. YAL'KOV, V.I. I GROSS, E.F. Kolebaniya Bodorodnoy Svyazi I Spektry  
Rasseynaniya. [Doklad, Prochit Na Nauch, Sessii Leningr. Un-Ta 4  
Dek. 1948 G.] Doklady-Akad. Nauk. SSSR. Novaya Seriya. T. LXVII,  
No. 4. 1949. S. 619-22--Bibliogr: S. 622.

SO: Letopis' No. 33, 1949